of the story reported by Nordenskiöld, that a sea-cow (*Rhytina gigas*) had been seen alive in 1854. There are two plates: one of the Saccopharyngoid *Ophiognathus ampullaceus*, the other of some new shells from Alaska. The index is as complete as usual in American books of this class.

NOTES

THE following is a list of the names which the President and Council of the Royal Society will recommend to the Society at their forthcoming Anniversary Meeting on the 30th inst. for election into the Council for the ensuing year:—President, Prof. George Gabriel Stokes, M.A., D.C.L., LL.D. Treasurer, John Evans, D.C.L., LL.D. Secretaries: Prof. Michael Foster, M.A., M.D., The Lord Rayleigh, D.C.L. Foreign Secretary, Prof. Alexander William Williamson, LL.D. Other Members of the Council: Prof. Robert B. Clifton, M.A., Prof. James Dewar, M.A., Prof. William Henry Flower, LL.D., Archibald Geikie, LL.D., Sir Joseph D. Hooker, K.C.S.I., Prof. Thomas Henry Huxley, LL.D., Admiral Sir A. Cooper Key, G.C.B., J. Norman Lockyer, F.R.A.S., Prof. Henry N. Moseley, M.A., F.L.S., Prof. Bartholomew Price, M.A., Prof. Pritchard, F.R.A.S., William James Russell, Ph.D., Prof. J. S. Burdon Sanderson, LL.D., Prof. Arthur Schuster, Ph.D., Lieut.-Gen. R. Strachey, R.E., C.S.I., General James Thomas Walker, C.B.

WE greatly regret to announce the death, on Tuesday, of Dr. W. B. Carpenter, at the age of seventy-three years. His death, it would seem, was the result of an accident a few hours before. The funeral will take place to-morrow (Friday) at Highgate Cemetery. We hope next week to refer at length to the scientific work of Dr. Carpenter.

A VERY remarkable article appears in the *Nation* of October 29, on "The Private Endowment of Research," remarkable as appearing in a paper like the *Nation*, published in a "practical" country like America. "Society," the *Nation* says, "may not be prepared to interfere with the breeding of great men, but when they have once been sporadically produced there is no reason why it should not concern itself with their careful preservation. In a state of nature there is a sure process for securing the supremacy of the most perfect individuals of a race, but the qualities which make the human being great are not always qualities which fit him for taking part in the vulgar struggle for existence. . . . Huxley has well said that any country would find it greatly to its profit to spend a hundred thousand dollars in first finding a Faraday, and then putting him in a position in which he could do the greatest possible amount of work." To expose a man of genius, according to the *Nation*, "to the same harsh treatment which is good for the hod-carrier and the bricklayer, is to indulge in a reckless waste of the means of a country's greatness. But instead of the rarely-gifted being treated more favourably by the present highly scientific generation, they actually receive less consideration than they have done in many past ages of the world. . . . The waste of water-power at Niagara (the article concludes) is as nothing compared with the waste of brain-power which results from compelling a man of exceptional qualifications to earn his own living. The owner of a great estate admits that the important charities of his town have a well-founded claim upon his purse; it would not require a very great change of heart for him to feel a vivid sense of shame if a few scholars are not carrying on their researches at his expense."

THE following papers (among others) will be read at the Society of Arts during the present Session:—Apparatus for the Automatic Extinction of Fires, by Prof. Silvanus P. Thompson; The Load Line of Ships, by Prof. Francis Elgar, F.R.S.E.; Technical Art Teaching, by F. Edward Hulme, F.L.S.; The Treatment of Sewage, by Dr. C. Meymott Tidy; Calculating Machines, by C. V. Boys; The History and Manufacture of Playing Cards, by George Clulow; Domestic Electric Lighting, by W. H. Preece, F.R.S.; The Scientific Development of the Coal Tar Industry, by Prof. R. Meldola, F.C.S. The First Course of Cantor Lectures will be on "The Microscope," by John Mayall, Jun., on November 23, 30, December 7, 14, 21; the Second Course will be on "Friction," by Prof. H. S. Hele Shaw, on January 18, 25, February 1, 8; the Third Course will be on "Science Teaching," by Prof. F. Guthrie, F.R.S., on February 15, 22, March 1; the Fourth Course will be on "Petroleum and its Products," by Boverton Redwood, F.C.S., on March 8, 15, 22, 29; the Fifth Course will be on "The Arts of Tapestry-Making and Embroidery," by Alan S. Cole, on April 5, 12, 19; and the Sixth and concluding Course will be on "Animal Mechanics," by B. W. Richardson, M.D., F.R.S., on May 3, 10, 17, 24, 31. The two Juvenile Lectures on "Waves" will be given by Prof. Silvanus P. Thompson on Wednesday evenings, December 30, 1885, and January 6, 1886, for which special tickets will be issued.

Science contains accounts by Profs. Mendenhall and Paul of the attempts made to obtain records of earth tremors from the explosion at Flood Rock at the entrance to New York harbour. Arrangements to secure observations were made by the Geological Survey, together with representatives from the Naval Observatory and Signal Service. The apparatus used by the Naval Observatory party was that usual in mercury observations, and three seismoscopes, one chronograph, and a number of chronometers. Unfortunately the firing of the mine was delayed for fourteen minutes, and this prevented good observations being taken at many places. The reports so far received indicate that out of seventeen stations (three occupied by geological survey parties and fourteen co-operating with them) five watched till the disturbance came, and got more or less satisfactory observations. At one of these the rock was directly in sight, and the others were so near that the observers felt sure that it had not escaped them. Four observed and timed some slight disturbances between 11h. 3m. and 11h. 7m., and, attributing them to the explosion, ceased watching for more, and either missed it entirely or were taken by surprise; two heard nothing at all up to about 11h. 10m., and so ceased observing and missed it, and six were yet to be heard from. It will thus be perceived that the results with regard to earth-tremors, which there was every reason to expect from this colossal explosion, have been greatly diminished by the long delay in firing the mine.

PART II. of the Report of the Trinity House Committee on the recent experiments with electricity, gas, and oil as lighthouse illuminants at South Foreland, which is now issued, contains some interesting details in connection with the trials. The first portion is devoted to illustrations of the arrangements made at the South Foreland for exhibiting, observing, and measuring the lights. The second section consists of the report of Prof. W. Grylls Adams, F.R.S., of King's College, London, on the electric light apparatus employed in the production of the light shown from A tower. Following upon Prof. Adams's report is a detailed description by Baron A. de Mèritens of the magneto-electric machines supplied by him for the experiments. This communication shows the principles of construction of the machines and the mechanical disposition of the magnets. Section IV. is a detailed record of the photometric observations made by Mr. Harold Dixon, of Balliol College, Oxford, and referred to by him in his report in Part I. The record consists principally of tables showing the work done on each night. Following this are some remarks upon the pentane standard devised by Mr. Vernon Harcourt, and adopted as the basis of measurement throughout the trials. Some interesting experiments to ascertain the effect of different atmospheric pressures upon this flame are described, in connection with which Mr. Harcourt and Mr. Dixon went to the summit of Ben Nevis. They found that the variation in the burning of the pentane flame due to variation in atmospheric pressure was less than had been anticipated, and that consequently no correction for such variation was necessary for the photometric results obtained at the South Foreland. Sections V., VI., and VII. deal with a very important question. A tabular statement is given illustrating the range of temperature within the gas and oil lanterns during the working of the higher power of these illuminants. In the gas lantern three of the four lens panels used to illustrate a fixed light have been seriously damaged, as shown by copies of photographs published. The lowest panel has not suffered. In the oil and electric lanterns the lenses are uninjured. The inference is that the damage has been caused by the direct or indirect action of heat. Section VIII. consists merely of a reproduction of a table from Mr. Thomas Stevenson's work on lighthouse construction and illumination in reference to the penetrating power of lights in relation to the increase of their intensity. Section IX. gives the result of observations made to ascertain the suitability of the respective illuminants for the exhibition of coloured sectors of light. The question of duration of flashes is dealt with in Section X. Under the heading "Divergence of Beam" Section XI. deals further with this question of the size of the beam. Section XII. consists of reports of experiments with sky-flashing lights, the object being to illuminate the clouds with sudden beams of light. In Section XIII. are given some memoranda for consideration in estimating the expenses of first cost and maintenance for lighthouses illuminated by gas. Section XIV. consists of a table showing the duration of fog at lighthouse and light-vessel stations on the English coasts, compiled from four years' records. Section XV. is a summarised journal of the lights shown each night during the year of the experiments.

IT is stated that in order to make adequate provision for medical education in Japan, the Government intends dividing the country into six medical divisions, and to establish a medical college in each, in which the future surgeons and physicians will be trained.

ON the 20th ult. Prof. Terrien de Lacouperie delivered the first of a series of lectures at University College, Gower Street, on the Science of Language and its recent progress, in connection with the languages of Indo-China. These languages, the lecturer said, are a new field of research in comparative philology which may lead to the reconsideration of several vital problems in the science of language. They offer a more satisfactory solution of these problems, and one more in accordance with the known facts of language past and present, but their influence has hitherto been injurious to the progress of linguistic science. The classification of languages into monosyllabic, agglutinative, and inflectional, is, he said, now recognised to be inadequate, and was based on a hypothesis of a primitive monosyllabic stage in the history of human speech which has never existed. The languages of Thibet, Burmah, Pegu, Siam, Annam, China, are generally called monosyllabic, and are still erroneously supposed by many to be living illustrations of the imaginary primitive language of monosyllabic roots. Such monosyllabism does not and never did exist. There are, the Professor said, three sorts of monosyllabism only—one of decay, one of writing, and one of elocution. It is to the last that the tongues of South-Eastern Asia belong, while the monosyllabism of English belongs to that of decay. The languages of the Far East, according to Prof. Lacouperie, belong to two great stocks—the Turanian and Himalayan—besides a residuum of Negrito and Papuan dialects. Turanian is represented by the great Kuenlunic branch, including (*a*) the Chinese family, (*b*) Tibeto-Burman group, (*c*) Yao-Karen group, (*d*) Dravidian family. Himalayan includes two great branches: (1) Indian, for the Kolarian languages, &c.; (2) Indo-Pacific, with four divisions—(*a*) Mōn-Taïc, subdivided into two families—(1) Mōn-Annam, (2) Taï Shan—(*b*) Malayan, (*c*) Polynesian, (*d*) Micronesian. The second lecture, on the formation, evolution, and influence of Chinese, will be delivered on the 17th instant.

AT a recent meeting of the Manchester Literary and Philosophical Society the special thanks of the Society were offered to Mr. Henry Wilde for the great liberality recently displayed by him in connection with the changes recently made in the building belonging to the Society, and in which it holds its meetings. When it was determined that new libraries should be erected to accommodate the rapidly increasing number of the Society's books, Mr. Wilde contributed the sum of 500*l*. to the building fund. The difference between the elegance of the new rooms and the dilapidated condition of the old ones offended Mr. Wilde's eye, and he resolved that he would, at his own expense, undertake their renovation. This he has now done at an additional cost to himself of 1100*l*. But the contribution of that money is only a part of what Mr. Wilde has done. He has personally superintended all the details of the work, rarely missing a day, during the last three months, in devoting several hours to that purpose. The results obtained evince at once the taste Mr. Wilde has displayed in regulating the style and character of the decorations.

WE learn from a communication in *Naturen* that apatite has been found by Herr Enoksen, within the last few months, in certain parts of Norway where its presence had not previously been detected. The importance of this discovery to local industry is all the greater, owing to the fact that the Bamle beds, which have hitherto been the principal source from which this valuable mineral has been derived, are in the hands of a French company, which purchased them some years ago for 350,000 kroner, and still monopolises the trade. The demand for the mineral is, moreover, very considerable in Norway, one Norwegian factory, the chemical works of Stavanger, taking from the Company about 1000 tons annually, at a cost of 100 kroner per ton. According to the well-known geologist, Herr Hans Reusch, there is every reason to expect that apatite will be found with tolerable frequency in Norway when working engineers have learnt to distinguish it from the numerous valueless minerals, to which its variability of colour gives it some resemblance—for the geological formation in which it has now for the first time been detected near Stavanger, is not of uncommon occurrence in Norway. The little island of Hille, lying about five miles to the north-east of Stavanger, where Herr Enoksen has been so fortunate as to find true apatite, exhibits no products of eruption, but has extensive deposits of mica schist, largely intermixed with hornblende, and finely granulated gneiss. Here apatite is found near titanic iron in isolated masses, varying in size from a man's head to that of a nut. It occurs in various parts of the island, but its true character was not detected till Herr Enoksen showed that a piece of a stone not uncommon in the Hille schists, which had been sent to him as a scapolite, was in reality a fragment of genuine apatite. This unexpected discovery has given great impetus to the further search for this valuable mineral, which, as we learn from recent reports, has also been found in the hornblende schists of the Egersund.

AN attempt has been recently made by Herr Liznar, of the Austrian Meteorological Society, to determine the daily course of cloudiness over different parts of the earth's surface. In most places there are two maxima and two minima in the day. He distinguishes four types, viz.:—(1) A maximum about midday, a minimum in the evening; this occurs, *e.g.* at Madrid (the maximum in summer becomes as late as 4 p.m.). (2) A maximum in the morning, and a minimum at midday; this is found at Los Angeles on the plateau of the Rocky Mountains. (3) Two maxima and two minima: the chief maximum in the morning, and the chief minimum in the evening; this type being met with in Vienna in winter and autumn, and in Bombay. (4) Two maxima and minima, but the chief maximum about midday and the chief minimum in the evening; this is the case at Vienna in summer and spring. The greatest amplitude of cloudiness appears at the stations on the Rocky Mountains plateaux; the sky being sometimes quite covered with clouds in the morning, and quite clear a few hours later. It is curious that the Sherman Station has a cloudiness exactly opposite in its course to that of Los Angeles. This meteorological element perhaps deserves more consideration than it has hitherto received.

A CORRESPONDENT of the *North China Herald* calls attention to a strange instance of Chinese belief and practice with regard to the human soul, which lately came under his notice. Lying awake at 3 a.m. he heard in the street close to his house two strange answering voices. Evidently two persons were engaged in this weird dramatic performance, one representing a departing soul, the other acting as the friends and relatives deprecating the departure. The first actor gave a low, prolonged cry, which was answered by a loud and earnest "Come, come." After a pause, the cry and the answering call were repeated; this went on for about ten minutes, when suddenly the inarticulate cry ceased. The second actor, in an agony of distress at the departure into the unseen of the soul he had been entreating to stay, shouted loudly in a voice, which he no doubt hoped would reach to the confines of the spirit world, "Return, return—come," at the same time calling by name. Then there was another pause, presently the low cry was heard as at a distance. "Come, come," eagerly responded the actor; and now the cry and the answer followed one another more rapidly till the cry seemed close to the caller, and in a smothered chorus as of welcome, the performance, which was probably directed by a Taoist necromancer, ceased. It is described as being strangely impressive in the stillness of the night, notwithstanding the grotesqueness of the superstition; but of course it was not known whether there was actual death in this case, within twelve hours of which the Chinese call for the soul to return, or whether it was only a case of serious illness, fainting, or collapse. This peculiar custom, it appears, varies in different parts of China. Up the Yangtsze it is usual for two women to perform the office. When a man dies suddenly the women walk through the streets, one calling out the name of the deceased, and the other responding "I am coming," the idea being to prevail on the wandering spirit of the deceased to return to its material abode, which, it is presumed, it has temporarily abandoned.

A NEW course of lectures has been established at the Collège de France on the mechanical theory of heat, magnetism, and electricity. The course will be given by M. Bouty.

ON October 22, at about 6 p.m., a slight shock of earthquake was felt at Ramsjö, in Sweden. It went from east to west, and lasted only a few seconds.

A LARGE consignment of Chinese and Japanese fish has lately reached this country, including the variegated goldfish, the nigger goldfish, the veil or fantail, the fringetail, and the nymphi. Some specimens have been on view at the Inventions Exhibition Aquarium, as well as some Russian loach and Hungarian beard-fish. A large conger eel weighing 30 lbs., which had been in the tank for a long period, has just died.

MR. JOSEPH D. REDDING, a California Fish Commissioner, writes to Prof. Baird stating that he has invited investigation into the question of the devastation caused by sea-lions in the bays and seas of San Francisco, where they abound in very large numbers. They are very voracious, and it is alleged that they destroy hundreds of thousands of pounds of edible fish daily; whilst fishermen declare that their business is rapidly declining in consequence. Mr. Redding intends to present an exhaustive report to the California Legislature and to the United States Fish Commission.

THE observations that are to be undertaken by the National Fish Culture Association with a view to discovering the effect of certain influences upon marine fishes will be commenced this month. The stations from which observations will be made in the first instance are the Seven-Stones, the Royal Sovereign, and the Outer Dowsing. Besides these, other localities will be visited from time to time by observers appointed for the purpose, who will make the most complete investigations as to surface and bottom temperatures of the sea, the density and transparency of the water, the temperature of the air, &c. The question as to the declension in the yield of certain fisheries and the development of others will form the subject of inquiry, as will also the question of restoring depleted fishing-grounds to their former fertility.

A SOCIETY for popularising the use of scientific methods has been established in France under the name of the Topographical Society. It held its festive meeting on November 8 in the large hall of the Sorbonne; M. Ferdinand de Lesseps was in the chair.

WE understand that Messrs. Macmillan and Co. will shortly publish a book on Elementary Algebra, by Mr. Charles Smith, the author of well known and popular treatises on Conic Sections and Solid Geometry. After the severe remarks made by Prof. Chrystal at the last meeting of the British Association on the teaching of elementary algebra, a new work on this subject will be looked for with more than usual interest.

THE Belgian Technical Railway Commission has pronounced in favour of experiments on a large scale with steel railway sleepers. It is announced that the first trial will be made on 60 kilometres of line.

MR. ERIC STUART BRUCE has been carrying on experiments at Chatham for the English Government, with a view to the adoption of his system of military signalling. The official trial of his invention took place on October 17. To test the signalling apparatus the balloon was sent up four or five miles from Chatham and allowed to ascend 500 feet, when a series of sentences were flashed by the Morse system. The officers of the Royal Engineers who were deputed to inspect the apparatus have pronounced the experiments "eminently satisfactory." It has been suggested that this translucent balloon may be utilised for other military operations besides signalling—such as for a "point light," for concentrating forces by night; and owing to the wide area which is illuminated by the balloon, it has been proposed to use it for lighting working parties.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♂) from India, presented by Mr. Montague C. Clark; a Gannet (*Sula bassana*), British, presented by Mr. H. Archer; a Tawny Owl (*Syrnium aluco*), British, presented by Mr. J. Hillier; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, presented by Mr. C. A. O. Marsham; a Squirrel Monkey (*Chrysothrix sciurea* ♀) from Guiana, a Ruffed Lemur (*Lemur varius* ♂) from Madagascar, a Macaque Monkey (*Macacus cynomolgus* ♀) from India, a Capercaillie (*Tetrao urogallus* ♂) from Norway, deposited; a Brazilian Tree Porcupine (*Sphingurus prehensilis*), a Naked-throated Bell-bird (*Chasmorhynchus nudicollis*) from Brazil, two Blue-winged Teal (*Querquedula cyanoptera*) from South America, five Lesser Snow Geese (*Chen albatus*) from Alaska, purchased; five Golden-bellied Beaver Rats (*Hydromys chrysogaster*) from Australia, received in exchange.